

REMARKS

In a final Office Action dated September 9, 2005, the Examiner rejected claims 1-20 under 35 U.S.C. §102(e) as being anticipated by Liroy (U.S. patent no. 6,775,553). The rejections and objections are traversed and reconsideration is hereby respectfully requested.

The Examiner rejected claims 1-20 under 35 U.S.C. §102(e) as being anticipated by Liroy. Claim 1 has been amended to provide, in a communication system comprising at least two peers that communicate with each other across an intermediate network comprising at least one infrastructure element, a method for an infrastructure element of the at least one infrastructure element to establish communications between two peers of the at least two peers, which method include monitoring at least a portion of messages exchanged between the two peers for control messages, storing at least some parameters corresponding to the control messages exchanged between the two peers to provide stored parameters, detecting occurrence of retransmission of a control message from one of the two peers, wherein the retransmission of the control message will lead to duplicate negotiations between the two peers, and processing the retransmission of the control message and sending a valid proxy response based on the stored parameters such that the duplicate negotiations are avoided between the two peers.

Support for the amendments to the claims may be found in FIGs. 6-8 and on pages 4-5 and 10-14 of the specification, wherein the pending application teaches a network element that operates between two peers and acts as a proxy for one of the two peers with respect to receiving and responding to control messages. That is, the network element receives a retransmission of a control message from one of the two peers and intended for the other peer, processes the retransmitted control message, and discards the retransmitted control message or sends a valid response based on parameters corresponding to the control messages exchanged between the two peers and stored by the network element, thus avoiding duplicate negotiations between the two peers. These features are not taught by Liroy.

Lioy employs two Point-to-Point Protocol (PPP) links, one between terminal equipment (TE2) and a mobile terminal (MT2) on a first side of an air interface, called PPP_R, and another between MT2 and an interworking function (IWF) of an infrastructure across the air interface (PPP_U). PPP consists of Link Control Protocol (LCP), Challenge Handshake Authentication Protocol (CHAP), and Internet Protocol Control Protocol (IPCP) negotiation phases. The teachings of Lioy are confined to the IPCP phase only, wherein TE2 requests an IP address before MT2 has obtained one from IWF. Lioy then teaches a sending, by MT2 to TE2, of IPCP Configure-NAKs with an arbitrary, invalid IP address until the actual IP address is supplied by the IWF. The purpose of this behavior is to allow additional time for the network/IWF to select an IP address for TE2 while avoiding a timeout at TE2. However, Lioy does not address the timeouts that might occur between IWF and MT2 (or, in fact, between MT2 and TE2) or a detecting whether a request is a retransmitted request and, in response to so detecting, a particular handling of a retransmitted request. That is, Lioy merely teaches receiving a request and then sending a Configure-NAK with an arbitrary, invalid IP address if no actual IP address has been supplied by the IWF. There is no determination made as to whether the request is a retransmitted request. Thus Lioy does not teach a method of dealing with duplicate requests from the PPP end points.

By contrast to Lioy, the teachings of claim 1 hasten completion of negotiations by detecting and dealing with a duplicate request expediently. That is, the teachings of claim 1 apply to situations where the IWF has responded but due to race conditions, a mobile station, such as MT2, sends a duplicate request. Claim 1 then teaches that an infrastructure element of an intermediate network, for example, a radio access network (RAN), sends an appropriate response back to the mobile station by using stored values from the actual (previous) response of IWF. Claim 5 further teaches a discarding of a duplicate request. Lioy does not teach detecting duplication of requests and either discarding the duplicate requests or responding to the duplicate requests with a valid response from the intermediate network which is based on the response from IWF, which is the actual PPP end point. Furthermore, the invalid IP address provided by MT2 to TE2 in Lioy is not a parameter of a control message that was previously sent by the IWF. By

contrast, claim 1 teaches storing parameters from a previous response and using these stored parameters to construct a response when a duplicate request is made.

Therefore, Lioy does not teach the features of claim 1 of a method for an infrastructure element to establish communications between two peers in a communication system comprising the at least two peers that communicate with each other across an intermediate network comprising the infrastructure element, the method comprising storing, by the infrastructure element, at least some parameters corresponding to the control messages exchanged between the two peers to provide stored parameters, detecting, by the infrastructure element, occurrence of retransmission of a control message from one of two peers, wherein the retransmission of the control message will lead to duplicate negotiations between the two peers, and processing, by the infrastructure element, the retransmission of the control message and sending a valid proxy response based on stored parameters such that the duplicate negotiations are avoided between the two peers. Accordingly, the applicants respectfully request that claim 1 may now be passed to allowance.

Since claims 2-8 depend upon allowable claim 1, the applicants respectfully request that claims 2-8 may now be passed to allowance.

Claim 9 has been amended to provide, in a communication system comprising at least two peers that communicate with each other across an intermediate network comprising at least one infrastructure element, a method for an infrastructure element of the at least one infrastructure element to establish communications between a first peer and a second peer of the at least two peers, the method including storing parameters from a received request control message to provide stored request control message parameters, receiving, from the first peer, a retransmission of the request control message targeted to the second peer, and processing the retransmission of the request control message and sending a valid proxy response based on the stored request control message parameters. Claim 11 further teaches a discarding of a duplicate request. As noted above, Lioy does not teach these features. Accordingly, the applicants respectfully request that claims 9 and 11 may now be passed to allowance.

Since claims 10-14 depend upon allowable claim 9, the applicants respectfully request that claims 10-14 may now be passed to allowance.

Claim 15 has been amended to provide an apparatus for use in an intermediate network across which at least two peers communicate with each other, the apparatus comprising a processor that stores, in an at least one storage device, at least some parameters corresponding to the control messages exchanged between the two peers to provide stored parameters, detects occurrence of retransmission of a control message from one of the two peers, wherein the retransmission of the control message will lead to duplicate negotiations between the two peers, and processes the retransmission of the control message and sends a valid proxy response based on the stored parameters such that the duplicate negotiations are avoided between the two peers. Claim 17 further teaches a discarding of a duplicate request. As described in detail above, no such processor is taught by Liroy. Accordingly, the applicants respectfully request that claims 15 and 17 may now be passed to allowance.

Furthermore, claims 19 and 20 teach a base station controller (BSC) and a mobile switching center (MSC) embodying the apparatus of claim 15. The base station (BS) and mobile switching center (MSC) taught by Liroy are mere conduits for control messages and never participate in the negotiations, unlike the BSC and MSC of claims 19 and 20 which detect occurrence of retransmission of a control message from one of the two peers, wherein the retransmission of the control message will lead to duplicate negotiations between the two peers, process the retransmitted control message, and send a valid proxy response based on the stored parameters such that the duplicate negotiations are avoided between the two peers. Therefore, Liroy cannot be construed to teach an embodiment of the apparatus described in claim 15 in a BS or MSC. For these reasons, and since claims 16-20 depend upon allowable claim 15, the applicants respectfully request that claims 16-20 may now be passed to allowance.

As the applicants have overcome all substantive rejections and objections given by the Examiner and have complied with all requests properly presented by the Examiner, the applicants contend that this Amendment, with the above discussion, overcomes the Examiner's objections to and rejections of the pending claims. Therefore, the applicants

respectfully solicit allowance of the application. If the Examiner is of the opinion that any issues regarding the status of the claims remain after this response, the Examiner is invited to contact the undersigned representative to expedite resolution of the matter.

Respectfully submitted,
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